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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,637	12/05/2001	Yutaka Muraki	M2013-43	8245

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EXAMINER

STEVENSON, ANDRE C

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/005,637

Applicant(s)

MURAKI ET AL.

Examiner

Andre' C. Stevenson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

Detail Action

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10005637, filed on December 05, 2001.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4 through 6 are rejected under 35 U.S.C. 102(b) as being unpatentable over Hennessey et al (U.S. Pat. No.6487307).

Hennessey et al (U.S. Pat. No.6487307), for **Claim #1**, a detect inspection method for detecting surface errors in a three-dimensional shape, comprising: repetitively scanning a light beam in a linear pattern on a first work; said first work being a reference work having a desired surface shape; storing reference images of said linear pattern on said first work, together with related information about positions of said

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light beam to produce a first matrix value at each position of said light beam (**Column 5, lines 19 through 32**); repetitively scanning said light beam in said linear pattern on a second work; said second work being an inspected work; storing inspected images of said linear pattern on said second work, together with related information about positions of said light beam to produce a second matrix value at each position of said light beam; finding a set of differences between each element of said first matrix and each corresponding element of said second matrix; defining as defect candidates elements of said set of differences in which said difference exceeds a most frequent difference by a predetermined value; and determining a presence of defects based on states of said defect candidates, (Abstract, Column 2, lines 61 through 67, Column 3, lines 30 through 56, lines 1 through 7, Column 5, lines 30 through 56, Column 7, lines 6 through 19).

Considering now, **Claim #4**, a surface-defect detection method for a three-dimensional object comprising: scanning a light beam over a surface of a perfect object; storing first matrix of reflectance's of said light beam from said perfect object; scanning said light beam over a surface of an inspected object to produce a second matrix: differencing reflectance's of said light beam from said inspected object with corresponding elements in said matrix to form a difference matrix; adding a most common value in said difference matrix to all elements in said- second matrix to produce a corrected matrix; differencing elements in said corrected matrix with

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corresponding elements in said first matrix; defining elements in said corrected matrix which differ from corresponding elements in said first matrix by a predetermined amount as error candidates; and examining patterns of said error candidates to detect errors in said surface of said inspected object, is taught by Hennessey et al (U.S. Pat.

No.6487307) (Abstract, Column 2, lines 61 through 67, Column 3, lines 30 through 56, lines 1 through 7, Column 5, lines 19 through 56, Column 7, lines 6 through 19).

With respect to **Claim #5**, a defect inspection method comprising: finding and storing a first matrix of a projection/recess shape of a perfect work in advance; finding a second matrix of a projection/recess shape of an inspected work: finding a difference between a value of said first matrix with a corresponding element of said second matrix, and storing said differences as a difference matrix; finding a most frequent value in said difference matrix and differencing elements in said difference matrix with said most frequent value to produce a candidate matrix; and identifying elements in said candidate matrix exceeding a predetermined value as defect candidates, is taught by Hennessey et al (U.S. Pat. No.6487307) (Abstract, Column 2, lines 61 through 67, Column 3, lines 30 through 56, lines 1 through 7, Column 5, lines 19 through 56, Column 7, lines 6 through 19).

Furthermore, **Claim #6**, a defect inspection method according to claim 5 further comprising examining a pattern of said defect candidates to identify defects, is taught by Hennessey et al (U.S. Pat. No.6487307) (Abstract, Column 2, lines 61 through 67,

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Column 3, lines 30 through 56, lines 1 through 7, Column 5, lines 19 through 56,
Column 7, lines 6 through 19).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim #2 rejected under 35 U.S.C. 103(a) as being unpatentable over Hennessey et al (U.S. Pat. No.6487307) as applied to claims 1 and 4 through 6 above, and further in view of Hagiwara (U.S. Pat. No.5680207).

Hennessey et al (U.S. Pat. No.6487307) discloses the claimed invention except for the rotating a scanning mirror about an axis. Hagiwara (U.S. Pat. No.5680207) teaches that it is known to have a rotating a scanning mirror about an axis.

With respect to **Claim #2**, a defect inspection method according to claim 1 wherein the step of repetitively scanning includes: rotating a scanning mirror about an axis: reflecting a light beam from said scanning mirror to illuminate a line on said work: and moving said work in a direction orthogonal to said line, is taught by Hagiwara (U.S. Pat. No.5680207) (Fig. #1 & 13, item 2, column 20, lines 10 through 34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a rotating a scanning mirror about an axis, as taught by Hagiwara (U.S. Pat. No.5680207), since Hagiwara (U.S. Pat. No.5680207) states at column 20, lines 10 through 34 that such a modification would allow the entire surface of the substrate to be inspected for foreign particles.

Objected Claims

Claim #3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim #3

- ✓ Storing instant angles of said scanning mirror

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (703) 308 6227. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (703) 308 3325. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

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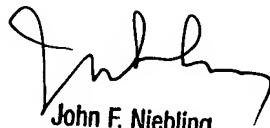
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

- TC2800 Official Before-Final RightFAX - (703) 872-9318
- TC2800 Official After-Final RightFAX - (703) 872-9319
- TC2800 Customer Service RightFAX - (703) 872-9317

Andre' Stevenson

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08/20/03



John F. Niebling
Supervisory Patent Examiner
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